

VARIABLE LENGTH INSTRUCTION PIPELINE

Erik K Norden

Roger D. Arnold

Robert E. Ober

ABSTRACT OF THE DISCLOSURE

A variable length instruction pipeline includes optional expansion stages that can be included in the variable length instruction pipeline to avoid pipeline stalls. The expansion stages are removed from the variable length instruction pipeline when not needed to reduce the length of the pipeline, which reduces latency and other problems associated with long pipelines. For example, in one embodiment of the present invention, a variable length instruction pipeline includes a first pipeline stage, a first expansion stage, and a second pipeline stage. The second pipeline stage is configured to selectively receive instructions from the first pipeline stage or the first expansion stage if the first expansion stage holds an instruction.